

Kay (Zekuan) Liu

126 W 41st St., New York, NY 10036 (JFK25)

+1 (650) 396-9755 | i@kayzliu.com | <https://kayzliu.com> | [LinkedIn](#) | [GitHub](#)

EMPLOYMENT

Amazon Web Service Security Analytics and AI Research	New York, NY
<i>Applied Scientist</i>	Manager: Dr. Wei Ding
<i>Applied Scientist Intern</i>	Manager: Dr. Ali Torkamani, Mentor: Dr. Jiahao Ding
• Contributed to the integration of security foundation model and anomaly detection models on cloud log data.	02/2025 – present
• Refactored internal anomaly detection toolkit and improved network log anomaly detection method.	05/2024 – 08/2024
• Enhanced domain reputation with scalable temporal graph Transformers.	
Amazon Buyer Risk Prevention, Applied Scientist Intern	Seattle WA, 05/2023 – 12/2023
• Alleviated the label imbalance problem in fraud detection with graph generation.	
Walmart Global Tech Sponsored Search, Data Scientist Intern	Sunnyvale CA, 05/2022 – 08/2022
• Improved query classification for sponsored search with heterogeneous graph embedding methods.	
Amazon Web Service AI Lab, Software Development Engineer Intern	Shanghai China, 05/2021 – 07/2021
• Contributed fraud detection related model examples and datasets to open-source graph machine learning library DGL .	

EDUCATION

University of Illinois Chicago (UIC)	08/2021 – 09/2025
<i>Ph.D. in Computer Science</i>	Advisor: Prof. Philip S. Yu
Research Assistant: 2021-2022, 2024-2025, Teaching Assistant: 2022-2023 (Data Structures, Big Data Mining)	
Dissertation: Generative Models Driven Graph Outlier Detection	
Beijing University of Posts and Telecommunications (BUPT)	09/2017 – 07/2021
<i>Bachelor of Engineering in Internet of Things Engineering</i> , Outstanding Thesis Award	
Queen Mary University of London (QMUL)	09/2017 – 07/2021
<i>Bachelor of Science (Engineering) with Honors, First Class, in Internet of Things</i> (Joint Program with BUPT)	

SELECTED PUBLICATIONS

Citations: 500+. View full publication list on [Google Scholar](#).

- **Liu, Kay**, Jiahao Ding, MohamadAli Torkamani, and Philip S. Yu. "TGTOD: A Global Temporal Graph Transformers for Outlier Detection at Scale." In *Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)*. 2025.
- **Liu, Kay**, Hengrui Zhang, Ziqing Hu, Fangxin Wang, and Philip S. Yu. "Data Augmentation for Supervised Graph Outlier Detection with Latent Diffusion Models." In *Learning on Graphs Conference (LoG)*. 2024.
- **Liu, Kay**, Yingtong Dou, Yue Zhao et al. "BOND: Benchmarking Unsupervised Outlier Node Detection on Static Attributed Graphs." In *Thirty-sixth Conference on Neural Information Processing Systems (NeurIPS)*. 2022.
- **Liu, Kay**, Yingtong Dou, Xueying Ding, Xiyang Hu, Ruitong Zhang, Hao Peng, Lichao Sun, and S. Yu Philip. "PyGOD: A Python Library for Graph Outlier Detection." *Journal of Machine Learning Research (JMLR)* 25, no. 141 (2024).
- Chang, Wenjing, **Kay Liu**, Philip S. Yu, and Jianjun Yu. "Enhancing Fairness in Unsupervised Graph Anomaly Detection through Disentanglement." *Transaction of Machine Learning Research (TMLR)* (2025).
- Chang, Wenjing, **Kay Liu**, Kaize Ding, Philip S. Yu, and Jianjun Yu. "Multitask Active Learning for Graph Anomaly Detection." *arXiv preprint arXiv:2401.13210* (2024).

AWARDS

• ACCESS Discover Project	11/2024
• NeurIPS Scholar Award	10/2022
• UIC Graduate Student Council Travel/Conference Award	10/2022, 01/2023, 10/2024

SERVICES

- **Reviewer:** ICLR 25, NeurIPS 22-25, KDD 24-25, LoG 23-24, Big Data Research, Transactions on Cybernetics, TIST.
- **External Reviewer:** KDD 22, CIKM 22, ASONAM 22, WWW 23, SIGIR 23, ECML-PKDD 23.

Last update: 09/23/2025